P4 Socket 775 Motherboard

IN915GVE

User's Manual

http://www.bcmcom.com

Declaration

USER'S NOTICE

COPYRIGHT © OF THIS MANUAL BELONGS TO THE MANUFACTURER. NO PART OF THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT MAY BE REPRODUCED, TRANSMITTED OR TRANSLATED INTO ANY LANGUAGE IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE MANUFACTURER.

THIS MANUAL CONTAINS INFORMATION NECESSARY TO USE OF IN915GVE MOTHER-BOARD AND WE HAVE TRY TO INCLUDE IN THIS MANUAL AS MANY INFORMATION AS POSSIBLE, BUT WE RESERVE RIGHT TO CHANGE, UPDATE ANYTIME WITHOUT PRIOR NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS " WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTIAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMANGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS OF ANY KIND ALIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL MAY OR MAY NOT BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGEMENT.

- Intel, Pentium® 4 are registered trademarks of Intel ® Corporation.
- Microsoft ® and Windows® are registered trademarks of Microsoft ® Corporation.
- Phoenix /Award® are registered trademarks of Phoenix Technologies LTD..

WARNING:

Incorrectly battery installation might cause battery to explode. Replace your system's CMOS RAM battery with the identical CR-2032 3V Lithium-Ion coin cell (or equivalent) battery type only to avoid risk of personal injury or physical damage to your equipment. Lithium battery might content toxic chemical, always dispose used batteries according to the manufacturer's instructions, or as required by the local ordinance (where applicable).

References:

This manual is created and written by BCM Technical Dept., but not limited, to the information from the IN915GVE External Production Specifications, and IN915GVE Specifications. If any comments, suggestions, or errors for this manual, please write an e-mail to support@bcmcom.com.

Compliance & Certificate

ISO 9001 Certificate:

This device was produced in our plant with advanced quality system certified by DNV QA Ltd. in according to ISO 9001. The Certificate is valid for:
DESIGN & MANUFACTURE OF MOTHERBOARD AND PERSONAL COMPUTERS.

CE Declaration:

CE marking is a visible declaration by the manufacturer or his authorized representatives that the electrical equipment to which it relates satisfies all the provisions of the 1994 Regulations.

FCC Compliance:

FCC stands for **F**ederal **C**ommunications **C**ommission.
This product complies with FCC Rules Part 15 and has been tested, and complied with the EMI rules by a certified body. In normal operation, there shall be no harmful interference caused by this device nor shall this device accept any interference received, including interference that may cause undesired operation of this product.

Easy Installation

The following “Easy Installation” steps are for users accustomed to the assembly of a computer system. For those individuals requiring more specific information, please refer to the more detailed descriptions located within the latter chapters of this manual.

Note: You must keep your power cable unplugged until the following installation steps are completed.

Getting Started

Touch a grounded metal surface to discharge static electricity stored in your body before unpacking your motherboard. For details please refer to Precaution.

Install the CPU by correctly aligning the CPU with the socket LGA775 (refer to CPU Installation Section). Next, install the 1.8 volt un-buffered DDRII SDRAM into the 240 pin DIMM slots.

Plug in any peripheral card(s) that you want to be included in the system .

Plug in all cables included in the package except for the power cord.

Please recheck all steps to ensure no mistakes have been made and then plug in the power cord and turn on the power to enter the BIOS setup, Chapter 3.

TABLE OF CONTENT

USER'S NOTICE 1

MANUAL REVISION INFORMATION 1

COOLING SOLUTIONS 2

CHAPTER 1 INTRODUCTION OF IN915GVE MOTHERBOARD

1-1 FEATURE OF MOTHERBOARD 3
1-2 SPECIFICATION 4
1-3 SYSTEM DIAGRAM 5
1-4 LAYOUT DIAGRAM 6

CHAPTER 2 HARDWARE INSTALLATION

2-1 HARDWARE INSTALLATION STEPS 8
2-2 CHECKING MOTHERBOARD'S JUMPER SETTING 8
2-3 INSTALL 9
2-3-1 GLOSSARY 9
2-3-2 ABOUT INTEL PENTIUM 4 LGA 775 CPU 10
2-4 INSTALL MEMORY 12
2-5 EXPANSION CARD 13
2-5-1 PROCEDURE FOR EXPANSION CARD INSTALLATION 13
2-5-2 ASSIGNING IRQ FOR EXPANSION CARD 13
2-5-3 INTERRUPT REQUEST TABLE FOR THIS MOTHERBOARD 14
2-6 CONNECTORS, HEADERS 15
2-6-1 CONNECTORS 15
2-6-2 HEADERS 18
2-7 STARTING UP YOUR COMPUTER 21

CHAPTER 3 INTRODUCING BIOS

3-1 ENTERING SETUP 23
3-2 GETTING HELP 23
3-3 THE MAIN MENU 23
3-4 STANDARD CMOS FEATURES 25
3-5 ADVANCED BIOS FEATURES 27
3-6 ADVANCED CHIPSET FEATURES 29
3-6-1 DRAM TIMING SETTINGS 29
3-7 INTEGRATED PERIPHERALS 31
3-7-1 PCI EXPRESS FUNCTION 31
3-7-2 CHIPSET IDE DEVICES 32
3-7-3 ONBOARD DEVICES 33
3-7-4 LEGACY DEVICES 34
3-8 POWER MANAGEMENT SETUP 36
3-9 PNP/PCI CONFIGURATION SETUP 38
3-10 PC HEALTH STATUS 40
3-11 POWER BIOS FEATURE 41
3-12 LOAD STANDARD/OPTIMIZED DEFAULTS 41
3-13 SET SUPERVISOR/USER PASSWORD 42

Mechanical Draw 43

Manual Revision Information

Reversion	Revision History	Date
1.0	First Release	Dec. 2005

Item Checklist

☑ 1 x IN915GVE Mainboard

☑ 1 x Cable for IDE/Floppy

☑ 1 x CD for motherboard utilities

☑ 1 x IN915GVE Quick Reference Guide

☑ 1 x IN915GVE User's Manual Digital Format on CD or DVD

☑ 1 x IN915GV Standard I/O Shield

☑ 1 x SATA cable

□ Cable for USB Port ¾ (Optional)

□ S/PDIF Module (Optional)

Intel Pentium 4® Processor Family Cooling Solutions

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increased surface area and concentrated airflow from attached fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, Intel recommends the use of thermal grease and locking mechanism to attach the heatsink to the processor.

When selecting a thermal solution for your system, please utilize an Intel recommend heatsink for use with Intel processors. Note, those heatsinks are recommended for maintaining the specified Maximum T case requirement. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Intel processors.

Please visit Intel website below for CPU installation video :

http://www.intel.com/cd/channel/reseller/asmo-na/eng/100617.htm

Chapter 1

Introduction of IN915GVE Motherboard

1-2 Feature of motherboard

The IN915GVE motherboard is design for use Intel latest Pentium® 4 LGA775 Processor, with Hyper-Threading Technology supported, the Intel 915GV® Chipset delivers a high performance and professional desktop, workstation platform solution. Which utilize the Socket LGA775 design.

IN915GVE motherboard use the Intel 915GV® Chipset Supports 533/800MHz System Bus in data transfer rate.

Up to 2GB Dual Channel DDR2 Memories. DDR2 is the next generation memory technology to replace the current DDR. With initial speeds from 400 and 533MHz, DDR2 memory provides bandwidth up to 4.3GB/s. Doubled by the dual-channel architecture, the widest memory bus bandwidth 8.6GB/s is achieved on this motherboard.

The ICH6R offers 4 SATA ports to provide speedier HDD throughout that boost overall system performance, one PIDE connection support UDMA33/ATA 66/ATA 100, allows 2 IDE devices connection.

With integrated Intel Graphics Media Accelerator 900 2D/3D supports 333MHz graphics core, and supports hardware motion compensation assist for software MPEG/DVD decode, by using a PCIE x16 connector, for alternative graphics solution, the IN915GVE is the most valuable and flexible solution .

The IN915GVE motherboard include LAN onboard, an Realtek 10/100 PCI LAN Controller (Optional Realtek Gbe).

Its also has integrated onboard an AC'97 2.1 Audio CODEC, which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility.

With USB control as well as capability of expanding to 8 USB2.0 function ports to meet faster data transfer, built-in hardware monitor function. This enable system monitor and protect your computer. These motherboards provided design in hardware to protect BIOS from virus crash BIOS data.

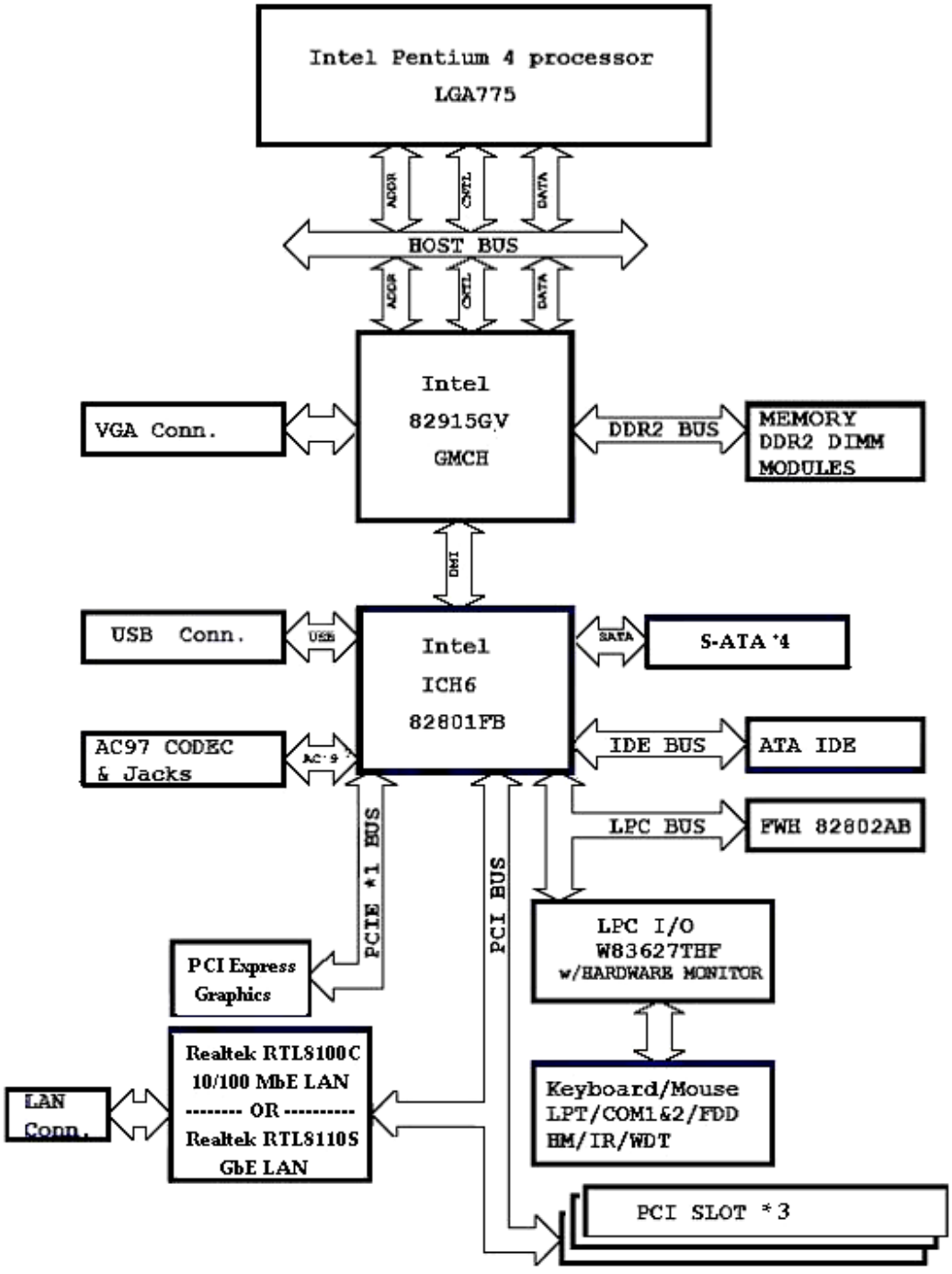
IN915GVE is the best value solution with high performance & Longevity for Embedded PC Applications.

1-2 Specification

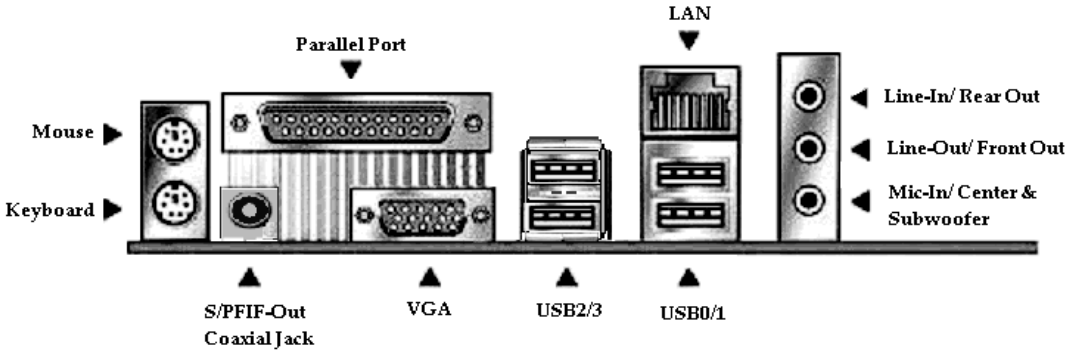
Spec	Description
Design	* Micro ATX form factor 4 layers PCB size: 9.6”(W) x 9.6”(D) (245 x 244 mm)
Chipset	* Intel® 915GV Graphics Memory Controller Hub (GMCH) Chipset * Intel ®82801FB I/O Controller Hub (ICH6) Chipset
CPU Socket (PLGA 775 Socket)	* Support Intel Pentium 4 LGA775 processor * Support CPU Frequency 533/800MHz * Support Intel 775 Pin Celeron D 3xx/ Pentium 4 5xx/ 6xx processor * Reserves support for future Intel Pentium 4 processors
Video Display	* Integrated Intel High Performance Graphics Media Accelerator 900 2D/3D, Graphics Core at 333MHz.
Memory Socket	* 240-pin DDRII SDRAM module socket x2 * Support Memory Type 128Mbit, 256Mbit, 512Mbit and 1Gbit Technology * Support Only 8x and 16x SDRAM device with 4 banks * Support 1.8V DDR2 400/DDR2 533 * Expandable to 2GB
Expansion Slot	* 1x PCI Express x16 slot (by 4 lines) for PCI Express VGA * 3x 32-bit PCI slot (PCI v2.3 compliant)
Integrate IDE	* One IDE interface support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100 functions that deliver the data transfer rate up to 100 MB/s, support up to 2 IDE device.
SATA	* Four Serial ATA host controller with independent DMA operation on all ports. * Data transfer rates up to 1.5Gb/s
USB	* 8x USB connectors, USB 2.0 compliant (4 connectors at rear panel and 4 on board header)
LAN	* Realtek RTL8100C ® 10/100 LAN
Audio	* AC’97 Digital Audio controller integrated * On board Realtek ALC-655 AC’97 2.3 Audio CODEC * 2 or 6 Channel Audio selectable * Audio driver and utility included
BIOS	* Phoenix® Award 4MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1, Serial port x2 (one on header) * Audio connector Line-in, Line-out, MIC

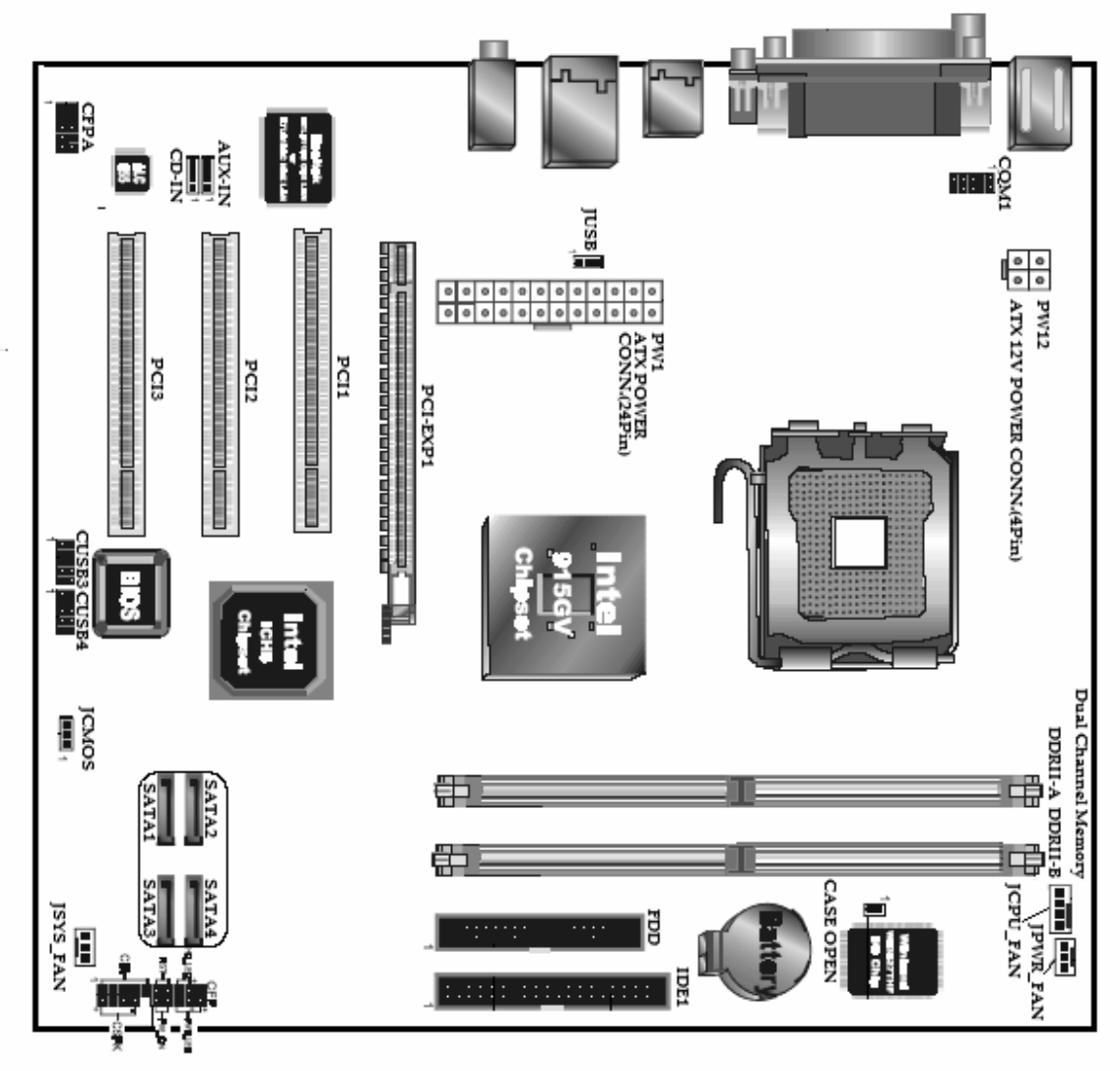
1-3 System Diagram

IN915GVE Mainboard Diagram



1-4 Jumper & Connector





Jumpers

Jumper	Description	Note
JCMOS	Clear CMOS	
JUSB	USB S3 Wake up Jumper	

Connector	Description	Note
AUX_IN	Extra Audio In	4 x 1 Wafer, Pitch 2.54mm
CFPA	Front Panel Audio Connector	2 x5 Pin Header, Pitch 2.54mm
CD_IN	CD-In	4 x 1 Wafer, Pitch 2.54mm
JCPU_FAN	CPU Fan Power Connector	4 x 1 Wafer, Pitch 2.54mm
JPWR_FAN	Additional Fan Connector	3 x 1 Wafer, Pitch 2.54mm
JSYS_FAN	Chassis Fan Connector	3 x 1 Wafer, Pitch 2.54mm
PW1	24 Pin ATX Power Connector	24 Pin Power Block
PW12	4 Pin ATX 12V Power Connector	4 Pin Power Block
CUSB3	Front USB Header 2	5 x 2 Header, Pitch 2.54mm
CUSB4	Front USB Header 2	5 x 2 Header, Pitch 2.54mm
J10	SPDIF	4 x 1 Wafer, Pitch 2.54mm
CFP	Chassis Front Panel Connector	5 x 2 Header, Pitch 2.54mm
CIR	IRDA Connector	5 x 1 Header, Pitch 2.54mm
CSPK	PC Speaker Connector	4 x 1 Header, Pitch 2.54mm
SATA1-4	SATA Connector	
COM1	COM Port Header	5 x2 Header, Pitch 2.54mm
Case-Open	Chassis intrusion	2 Pin header

Socket	Description	Note
U16	CPU Socket	LGA 775 Socket
DDR2 A1	DDRII Socket	240 Pin DIMM Socket
DDR2 B1	DDRII Socket	240 Pin DIMM Socket

Chapter 2
Hardware installation

2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:

1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DDR2 DIMM)
4. Install Expansion cards
5. Connect HDD and Floppy cables, Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) CMOS RAM Clear (3-pin) : JCMOS

A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JP4 to store the CMOS data.

To clear the CMOS, follow the procedure below:

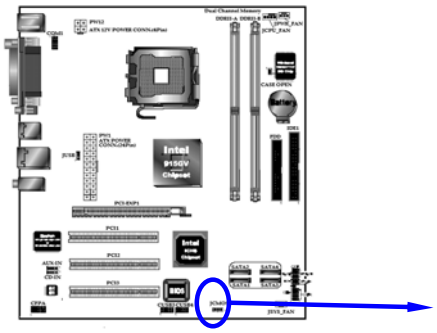
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JCMOS and short pins 2-3 for a few seconds
4. Return JCMOS on its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

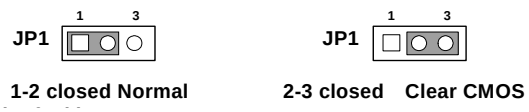
Note: When should clear CMOS

1. Troubleshooting

2. Forget password

3. After over clocking system boot fail





CMOS RAM Clear Setting

2-3 Installation

2-3-1 Glossary

Chipset (or core logic) – An highly integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.

Processor slot/socket - the slot or socket used to mount the system processor on the motherboard.

Slot - (PCI Express, PCI, DIMM) - the slots used to mount adapter cards and system RAM.

PCI Express – A latest Serial Point to Point Protocol PCI Interconnect, PCIE devices does not share bandwidth.

PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

Serial Port - a low speed legacy interface typically used for mouse and external modems.

Parallel Port - a low speed legacy interface typically used for printers.

PS/2 - a low speed legacy interface used for mouse and keyboards.

USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.

BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.

Driver - software, which defines the characteristics of a device for use by another device or other software.

Processor - the "**C**entral **P**rocessing **U**nit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

Front Side Bus Frequency - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

CPU L2 Cache - the flash memory inside the CPU, normally Intel P4 CPU has 512K or above, while Celeron will have 256K.

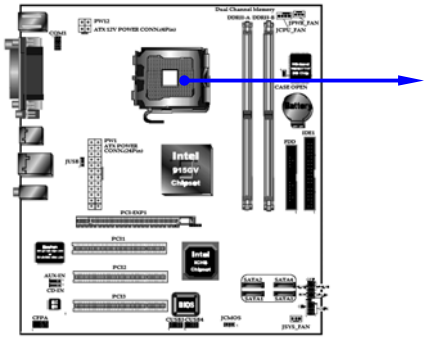
2-3-2 About Intel Pentium 4 LGA 775-pin CPU

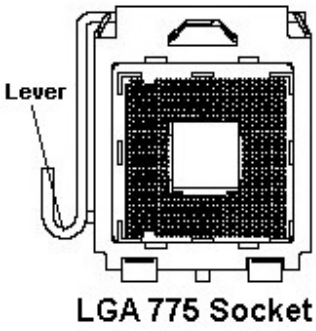
This motherboard provides a 775-pin surface mount ZIF socket (**Z**ero **I**nsertion **F**orce), referred to as the LGA 775 socket supports Intel Pentium 4 processor in the 775-land package utilizes Flip-Chip Pin Land Grid Array (FC-LGA4) package technology.

The CPU should have a cooling FAN attached to prevent overheating. If this is not the case, then make sure the CPU has a sufficient cooling to dissipate heat generate from the CPU (Please check with Intel specification).

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the LGA775 socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.





When you put the CPU into the ZIF socket. No force require to insert of the CPU, do not touch the socket leads, touching the socket leads may result in damage to the leads. Do not slide or twist the processor during installation.

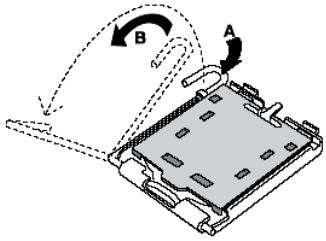
Save The Processor Socket Cover

After removing the processor cover during processor installation, please save the processor socket cover. In the event that the desktop board needs to be returned for service or any time the processor is removed, the cover should be replaced on the processor socket.

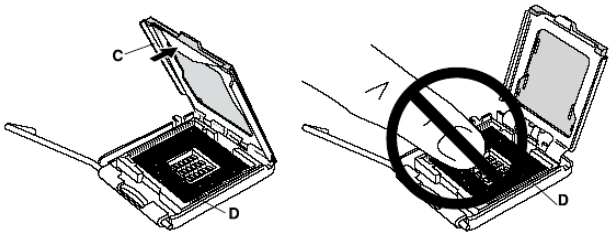
CPU Installation

This processor is intended to be professionally installed. Before installing the processor, please review the additional notes available at http://www.intel.com/go/integration. Take proper electrostatics discharge (ESD) precautions such as using appropriate ground strips, gloves, and ESD mats.

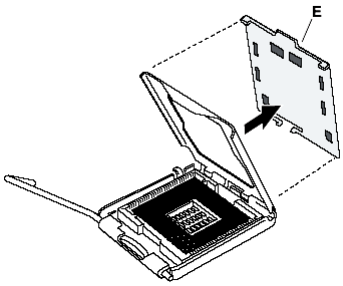
1) Open socket lever by pushing lever down and away from socket (A). Lift lever (B).



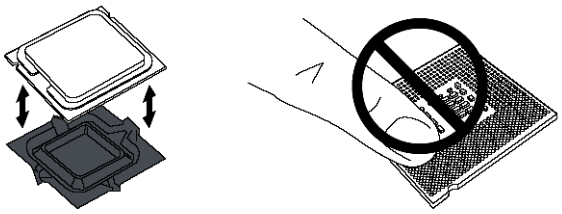
2) Open load plate (C). **DO NOT TOUCH SOCKET CONTACTS (D)**



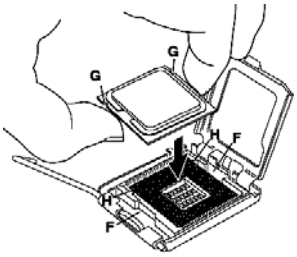
3) Remove protective cover (E) from load plate. Do not discard the protective cover. Always replace the socket cover if the processor is removed from the socket.



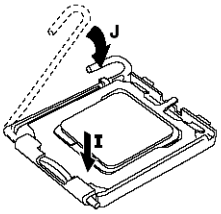
4) Remove processor from protective cover. (HOLD PROCESSOR ONLY AT EDGES, BEING CAREFUL NOT TO TOUCH BOTTOM OF PROCESSOR) Do not discard the protective cover. Always replace the socket cover if the processor is removed from the socket.



5) Hold processor with thumb and index fingers oriented as shown. {Ensure fingers align to socket cutouts (F)}. Align notches (G) with socket (H). Lower the processor straight down without tilting or sliding the processor in the socket.



6) Close load plate. Pressing down on load plate (I) close and engage socket lever (J).



2-4 Install Memory

The IN915GVE support Dual Channel Technology, operating with Dual Channel Technology, the bandwidth of Memory Bus will double up to 6.4GB/s.
IN915GVE includes 2x DDR2 DIMM (**D**ouble **D**ata **R**ate) memory socket allow up to a maximum memory size of 2.0GB.
Support 256Mb, 512Mb and 1Gb technologies implemented as x8, x16 devices.

- Non-ECC un-buffered only.

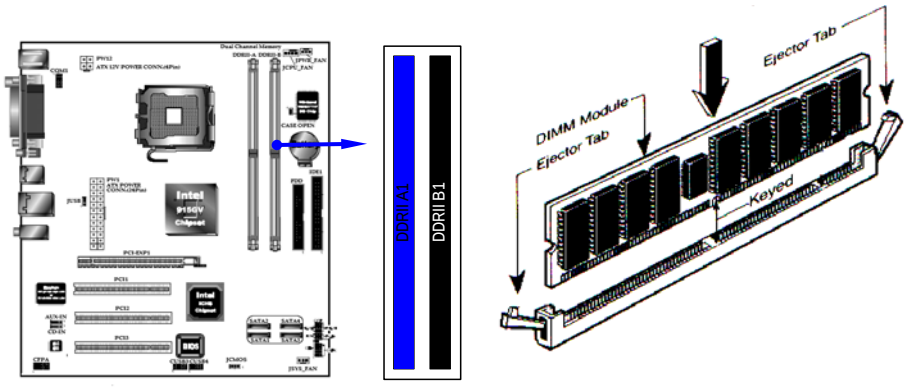
Use of two DDR2 memory modules in to same color DIMMs slots is strongly recommended, for optimal performance for Dual Channel Technology to work. Always install DIMMs with same CAS latency to avoid memory timing compatibility problem. It is also recommended to use memory modules from the same vendor.

Valid Memory Configurations

Bank	DDR2	Single Channel						Dual Channel				Total Memory
DDRII A1	DS/SS DDRII	X				X		X			X	256MB~1.0GB
DDRII B1	DS/SS DDRII		X			X			X	X	X	256MB~1.0GB
Total	System Memory(Max. 4.0GB)											256MB~2.0GB

* DS Double Side, SS Single Side

Generally, installing DDRII SDRAM modules to your motherboard is very easy, refer to figure 2-4 to see what a 240-Pin DDRII 533/DDRII 400 SDRAM module looks like.



NOTE!	When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.

2-5 Expansion Cards

WARNING! Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must exclusively assign to one use. In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Built-in Infrared Device
4 *	9	Communications Port (COM1)
5 *	6	LPT2 or COM5
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Compliant Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2-5-3 Interrupt Request Table For This Motherboard

Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
PCI Slot 1								
PCI Slot 2								
PCI Slot 3								
Realtek RTL8100C LAN								

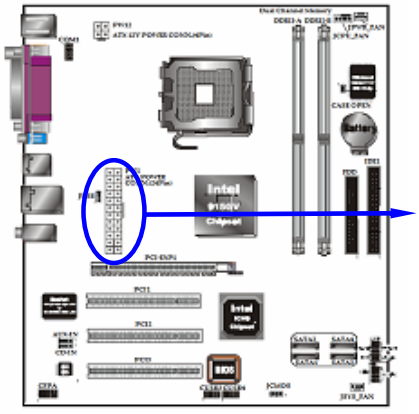
IMPORTANT! If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

2-6 Connectors, Headers

2-6-1 Connectors

(1) Power Connector (24-pin block) : PW1

ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

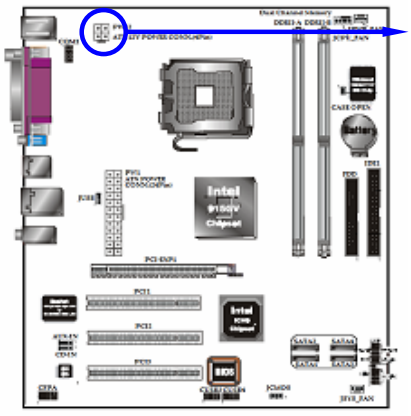


Pin 1

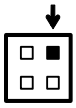
PIN	ROW2	ROW1	PIN
1	+3.3V	+3.3V	13
2	-12V	+3.3V	14
3	GND	GND	15
4	Soft Power On	5V	16
5	GND	GND	17
6	GND	5V	18
7	GND	GND	19
8	-5V	Power OK	20
9	+5V	+5V (for Soft Logic)	21
10	+5V	+12V	22
11	+ 5V	+12V	23
12	GND	+3.3V	24

(2) ATX 12V Power Connector (4-pin block) : PW12

This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



Pin 1



Signal	Pin		Signal
12V	2	1	GND
12V	4	3	GND

(3) PS/2 Mouse & PS/2 Keyboard Connector: PS2 KB/MOUSE
The connectors for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: USB (USB1)
The connectors are 4-pin connector that connect USB devices to the system board.

(5) LAN Port connector: LAN
This connector is standard RJ45 connector for Network connector.

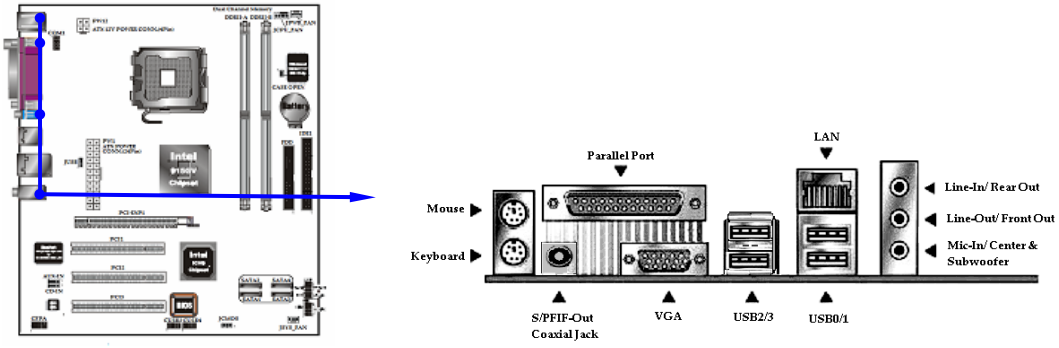
(6) Parallel Port Connector (25-pin female): LPT
Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

(7) Audio and Game Connector : GAME
This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.

Line-out : Audio output to speaker
Line-in : Audio input to sound chip
MIC : Microphone Connector
Game/MIDI : For joystick or MIDI Device

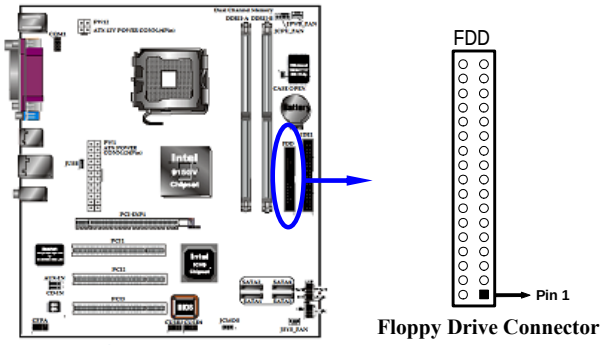
(8) VGA Connector (15-pin D-Sub) Connector: VGA
VGA is the 15-pin D-Subminiature female connector for display monitor.

(9) Serial Port COM1: COM1
OM1 is the 9-pin D-Subminiature mail connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.



(10) Floppy drive Connector (34-pin block): FDD

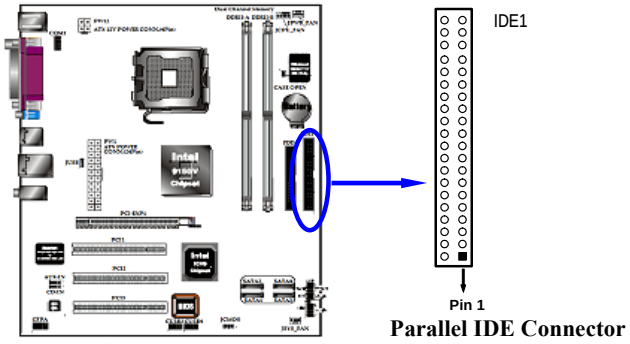
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.



Floppy Drive Connector

(11) Primary IDE Connector (40-pin block): IDE1

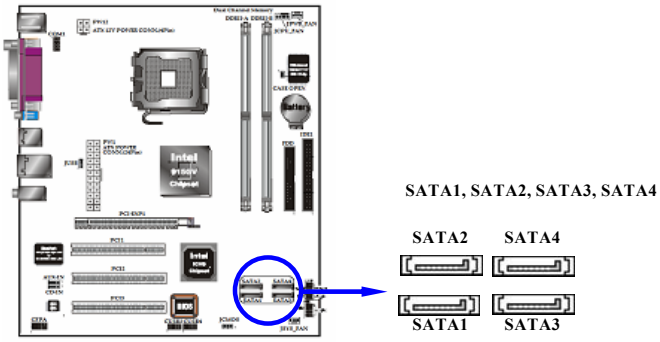
This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.



Parallel IDE Connector

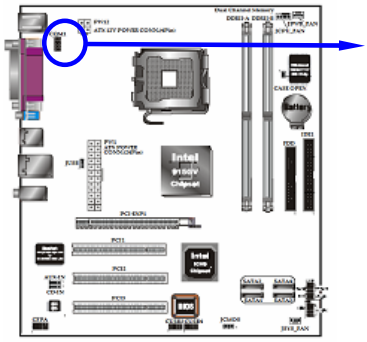
(12) Serial ATA SATA1, SATA2, SATA3, SATA4

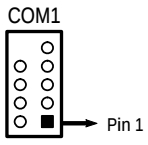
This connector supports Serial ATA device. After connecting the single plug end to motherboard, connect the plug at other end to the SATA device.



2-6-2 Headers

(1) Serial Port2 COM2 Header (9-pin) : J28



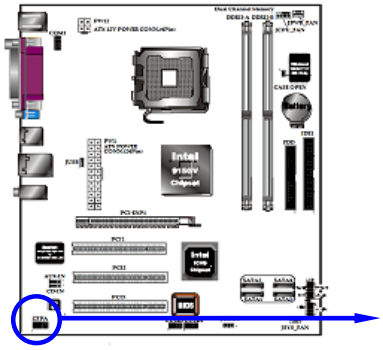


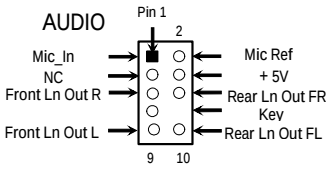
Signal	Pin		Signal
NC	10	5	GND
RI	9	4	TxD
CTS	8	3	SOUT
RTS	7	2	RxD
DSR	6	1	DCD

Serial Port COM1 Header

2) Line-Out, MIC Header (9-pin): AUDIO

This header connect to Front Panel Line-out, MIC connector with cable.

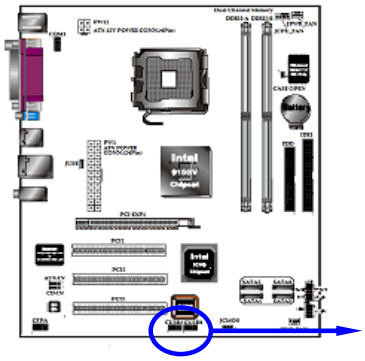


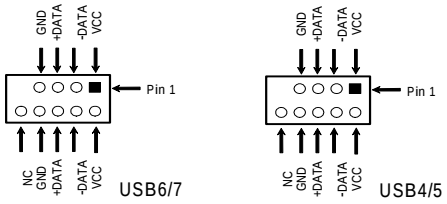


Line-Out, MIC Headers CFPA

(3) Front USB Headers (9-pin) : CUSB3, CUSB4

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.





USB Port Headers

(4) IDE Activity LED: IDE LED

This connector connects to the hard disk activity indicator light on the case.

(5) Reset switch lead: RESET

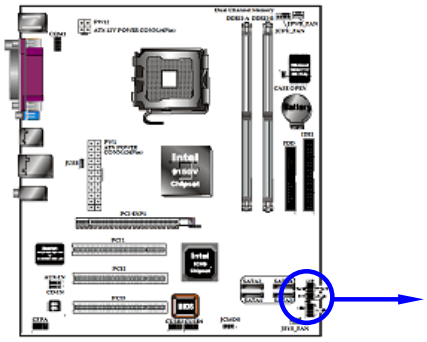
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the lift of the system's power supply. See the figure below.

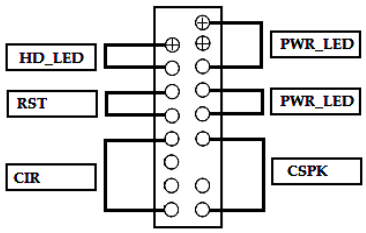
(6) Power LED

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(8) Power switch: PWR BTN

This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

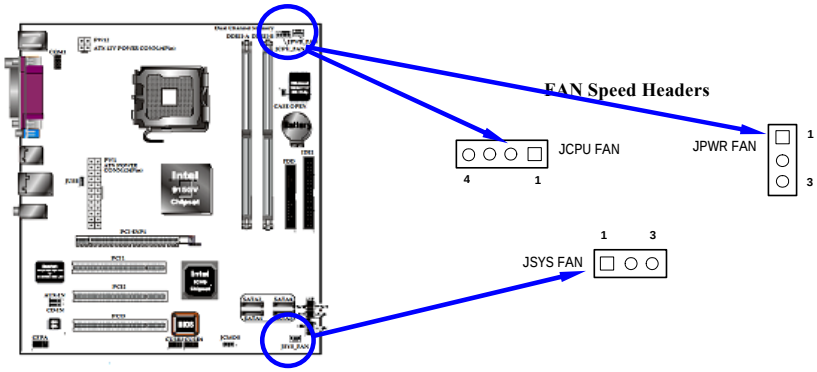




System Front Panel CFP

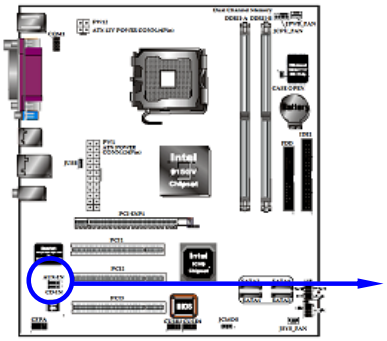
(9) FAN Speed Headers (3-pin) : Chassis FAN, SYSFAN, CPUFAN

These connectors support cooling fans, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



(10) CD Audio-In Headers (4-pin) : CDIN

CDIN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.

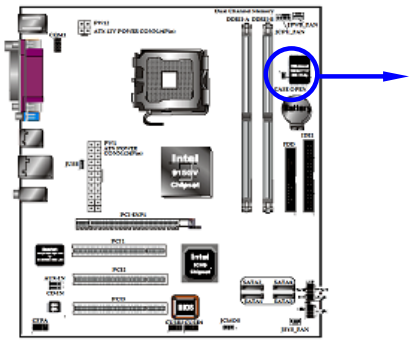


CD-IN & AUX-IN Header

J4	
Pin	Signal
1	AUX-L
2	AGND
3	AGND
4	AUX-R

J11	
Pin	Signal
1	CD-L
2	CD-GND
3	CD-GND
4	CD-R

(11) Chassis Intrusion (J27)



Signal	Pin
Chassis#	1
GND	2

2-7 Starting Up Your Computer

1. After all connection are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to the local voltage, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
   a. Your monitor.
   b. Other external peripheral (Printer, Scanner, External Modem etc…)
   c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

   If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	**Meaning**
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <F2> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, 2K, XP, click **"Start"** button, click **"Shut down"** and then click **"Shut down the computer?"** The power supply should turn off after windows shut down.

Chapter 3

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and the operating system. When starting up the computer, the BIOS program gain control. The BIOS first operates a self-diagnostic test called POST (Power On Self Test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

BIOS SETUP Program

Phoenix /Award provides a highly efficient and maintainable system BIOS for MX855-LC. The concise user interface and clear explanations help customer easily modify the BIOS parameters via the BIOS SETUP program.

The BIOS Flash ROM on the motherboard stores the SETUP program. When you start up the computer, the system provides you the opportunity to run this program. This appears during the Power-On Self Test (POST). Press <Del> to call up the SETUP Program. If you are late in pressing the mentioned key and operating system is started, you will need to shutdown the operating system, restart the system and repeat the process again.

The SETUP program is a menu-driven program. You can scroll through the various menus and make your selections among the predetermined choices in just a few keystrokes.

To access the BIOS SETUP program, press the <Del> key after the computer has run through its POST. Your computer manufacturer may use a key other than <Del> key to invoke the SETUP program. BIOS POST screen displays the SETUP key assignment for these BIOS on the bottom of the POST screen.

NOTE: Because the BIOS software is constantly being updated, the following BIOS screens and

descriptions are for reference purposes only and may not reflect your BIOS screens exactly.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/– keys when you want to modify the BIOS parameters for the active option.

3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.

If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup

3-2 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

3-3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from fourteen setup functions and two

exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

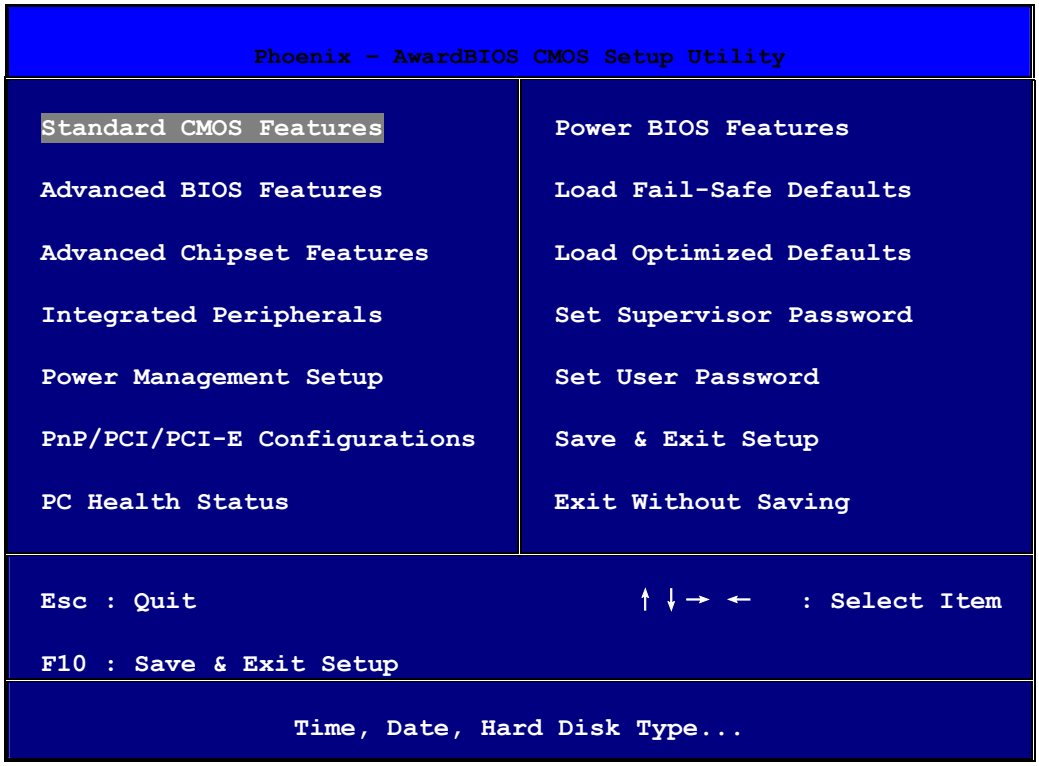
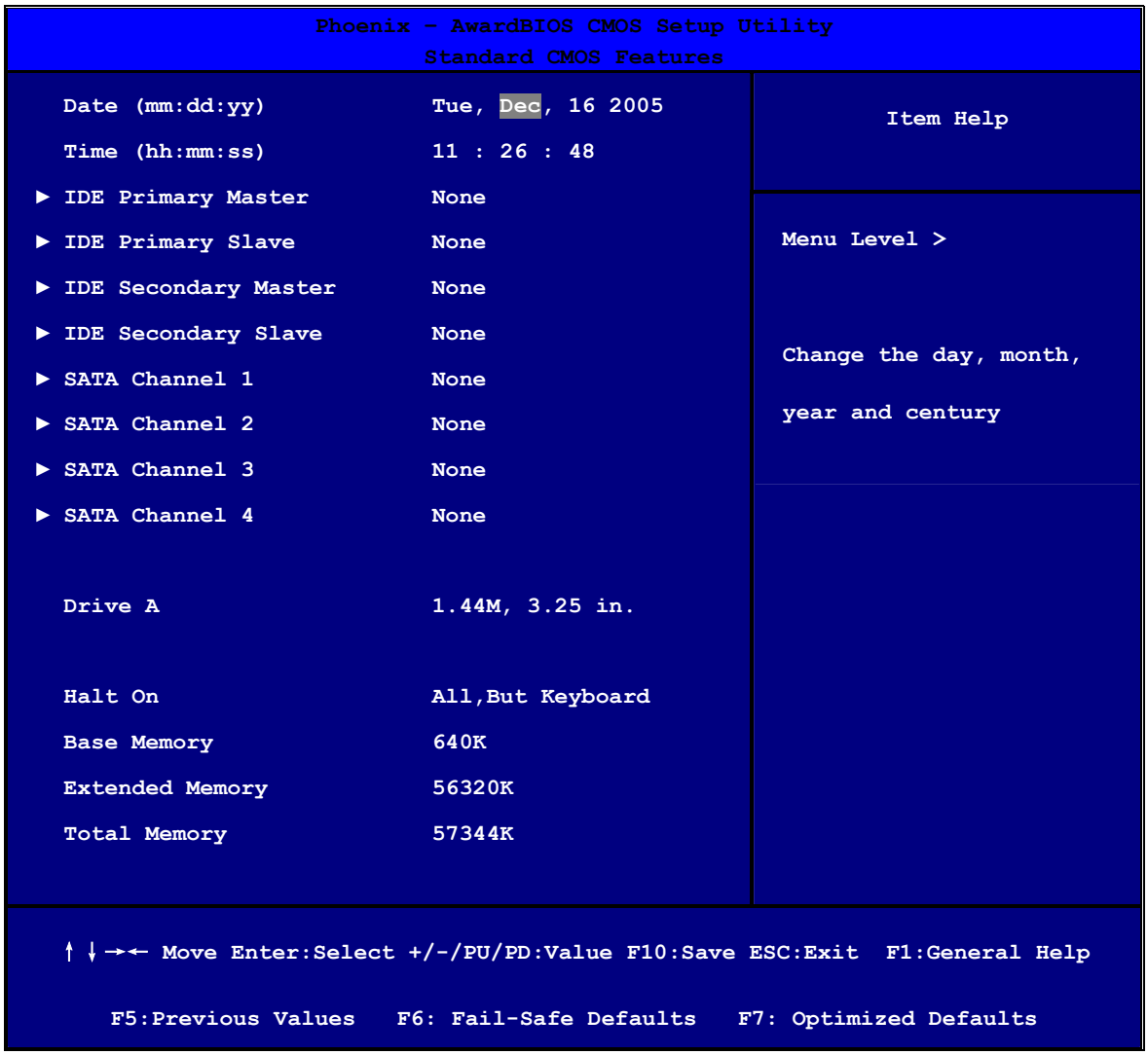


Figure 3-1

3-4 Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

The date format is <day><month><date><year>.

Day Day of the week, from Sun to Sat, determined by BIOS. Read-only.

Month The month from Jan. through Dec.

Date The date from 1 to 31 can be keyed by numeric function keys.

Year The year depends on the year of the BIOS.

Time The time format is <hour><minute><second>.

Primary Master/Primary Slave

Secondary Master/Secondary Slave

Press PgUp/<+> or PgDn/<–> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be “None”.

If the controller of HDD interface is CD-ROM, the selection shall be “None”

Access Mode The settings are Auto Normal, Large, and LBA.

Cylinder number of cylinders

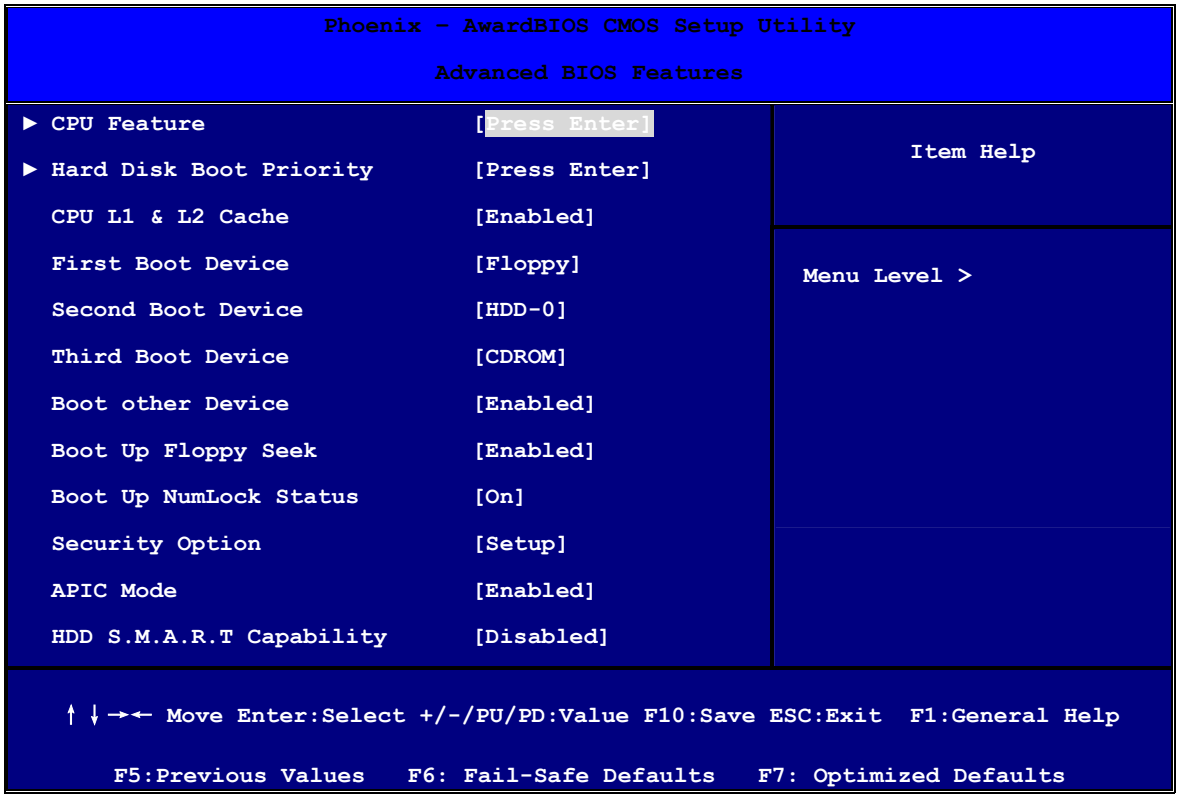
Head number of heads

Precomp write precomp

Landing Zone landing zone

Sector number of sectors

3-5 Advanced BIOS Features



CPU Feature

Hard Disk Boot Priority

Allow you to select Hard Disk boot Priority.

Thermal Management

Select type of thermal management for On die throttling, or Ratio & VID transistion.

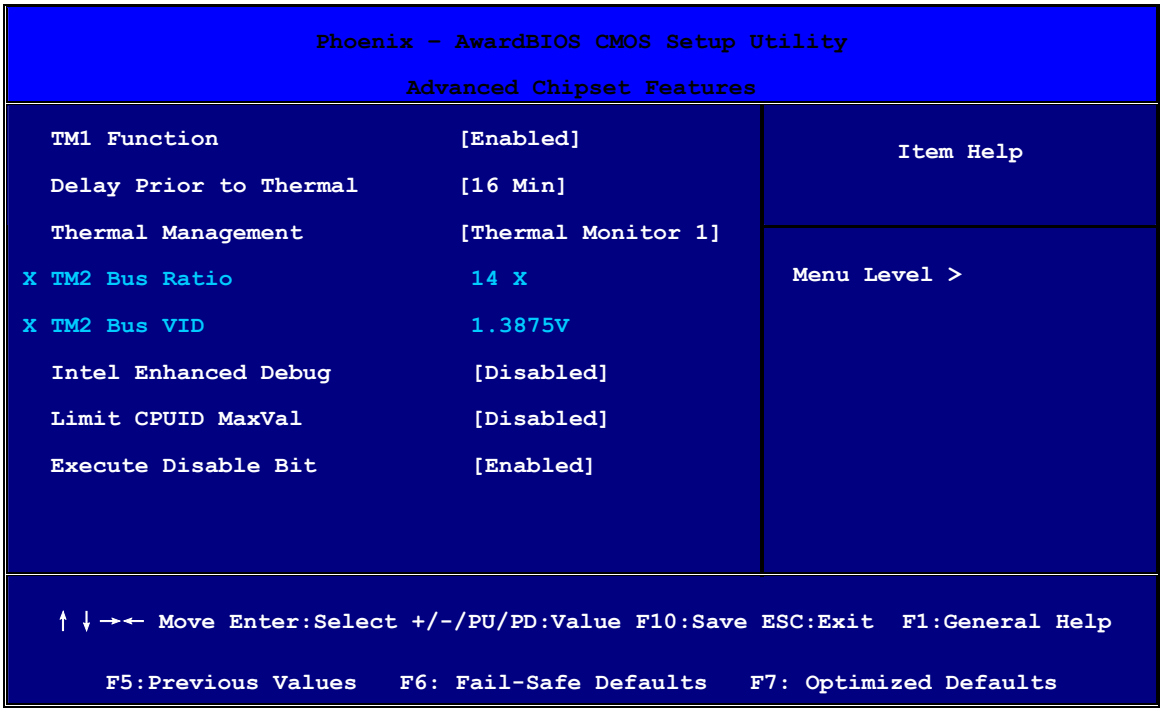
Limit CPUID MaxVal

Set limit CPUID MaxVal to 3, should be set to disabled for WinXP

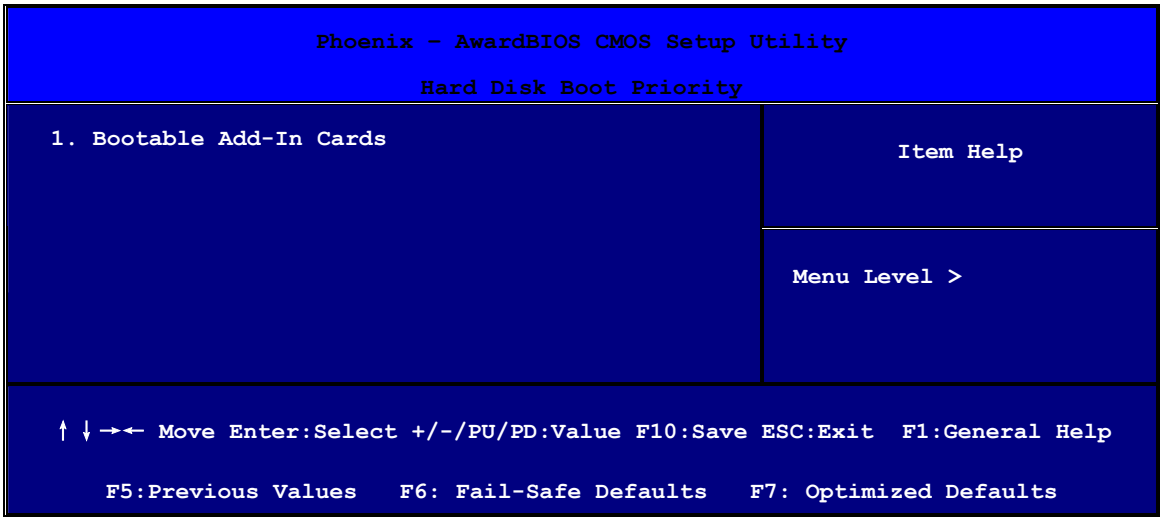
Execute Disable Bit

When this feature is set to disabled, Forcing the XD feature flag to always return 0.

3-5-1 CPU Feature



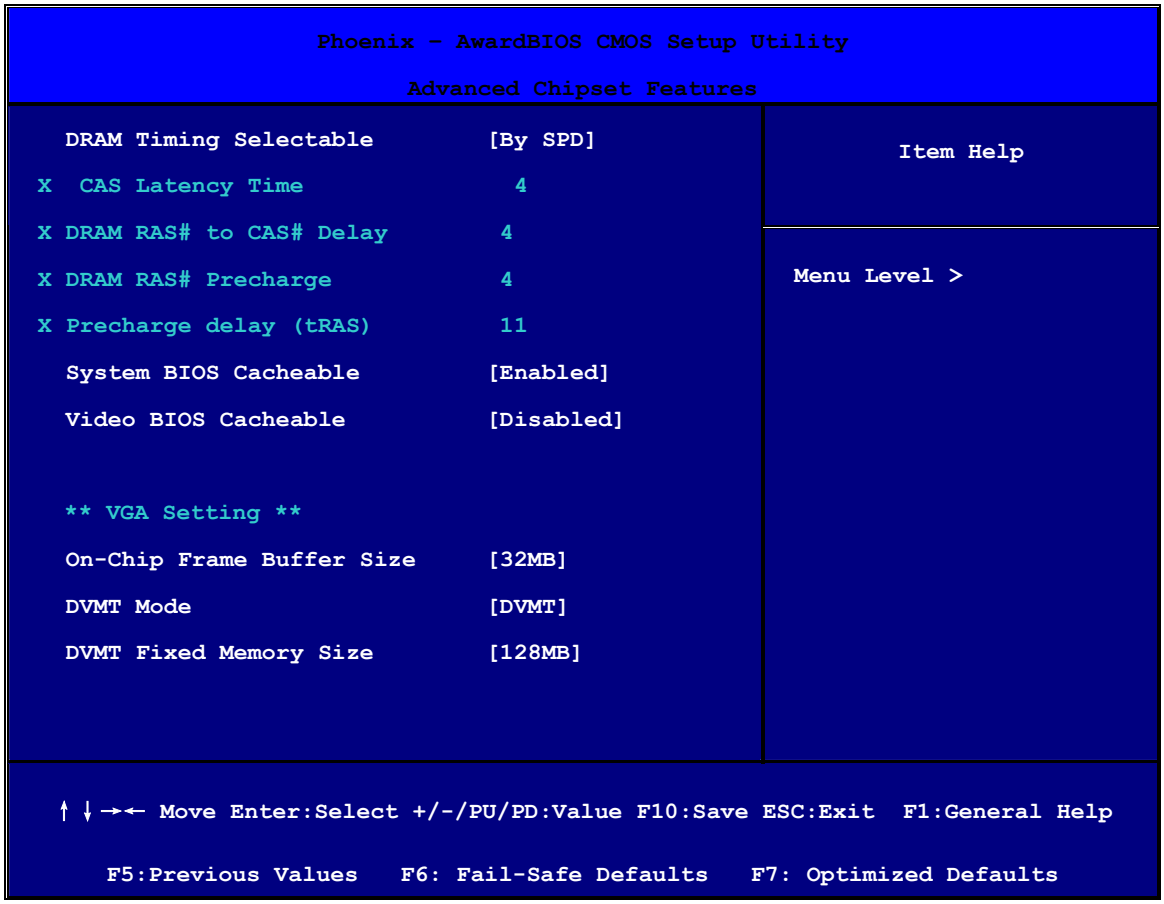
3-5-2 Hard Disk Boot Priority



Hard Disk Boot Priority

Use arrow key to select which boot device has higher priority.

3-6 Advanced Chipset Features



DRAM Timing Selectable:

Select the DRAM timing for SPD or Manual

CAS Latency Time:

This Option allow to select the DRAM CAS latency depend on the module specs.

Available choice: 2 or 2.5.

DRAM RAS# To CAS# Delay:

This field allow you to insert a timing delay between the CAS and RAS strobe.

Avalable choice: 2 or 3.

DRAM RAS# Precharge:

Available choice : 2 or 3.

System BIOS Cacheable :

This option allow you to Enable or Disable the system BIOS to be cache to DRAM.

Available choice: Enabled or Disabled.

Video BIOS Cacheable:

This Option Allow you to Enable or Disable the video BIOS to be cache to DRAM.

Available choice: Enabled or Disabled.

On-Chip Frame Buffer Size:

This item allows you to set the on-chip frame buffer size.

Available choice: 1M, 8M.

DVMT Mode:

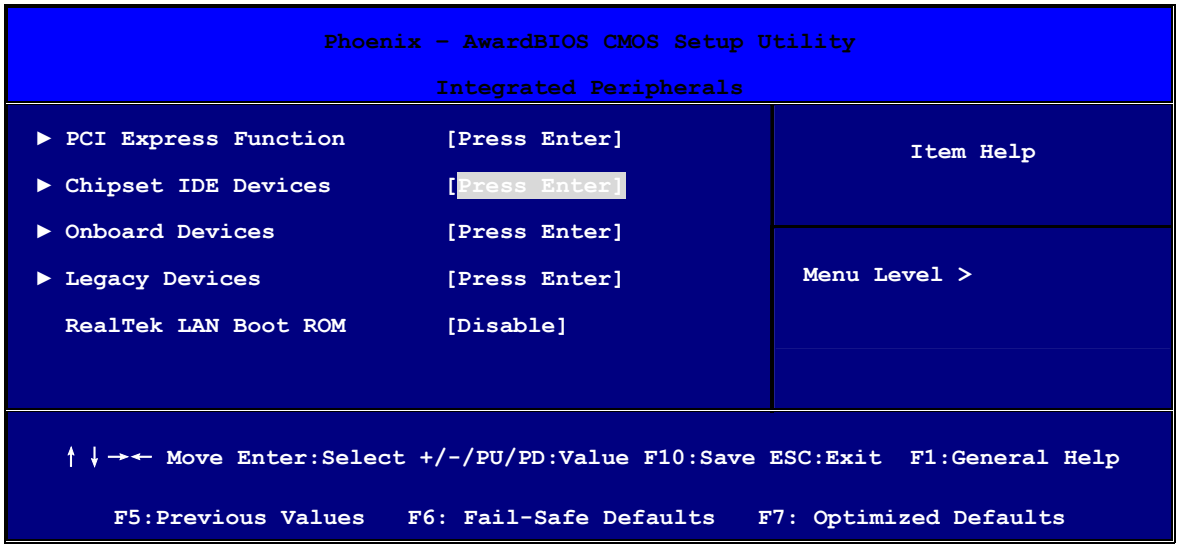
This item allows you to select the Intel Dynamic Video Memory to a fixed, Dynamic or Both.

DVMT/FIXED Memory Size:

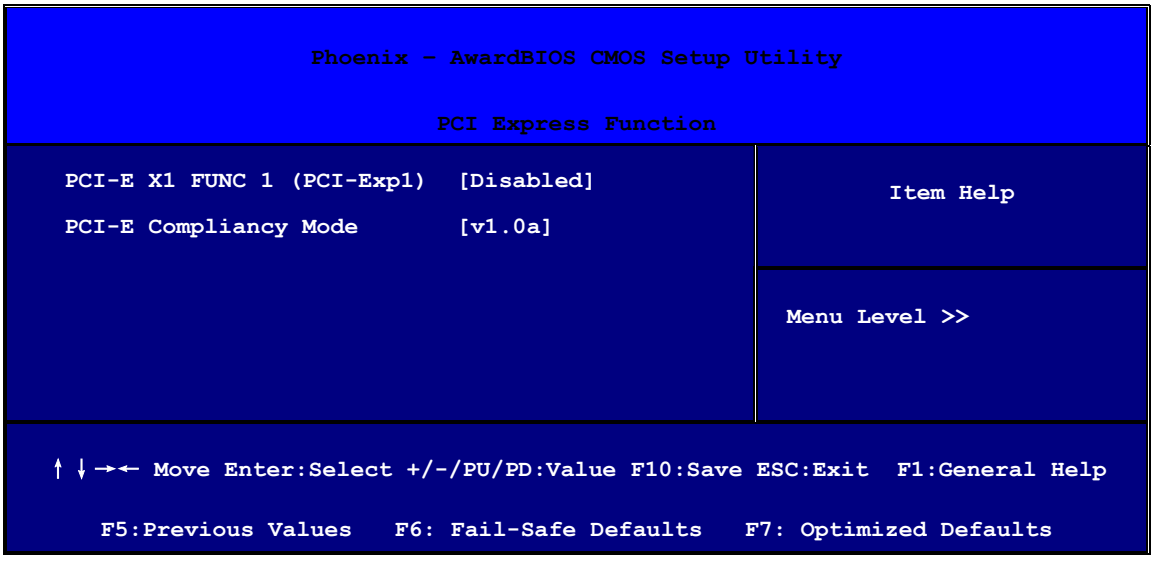
This item allows you to select the DVMT/ Fixed Memory Size.

Available choice: 64 or 128.

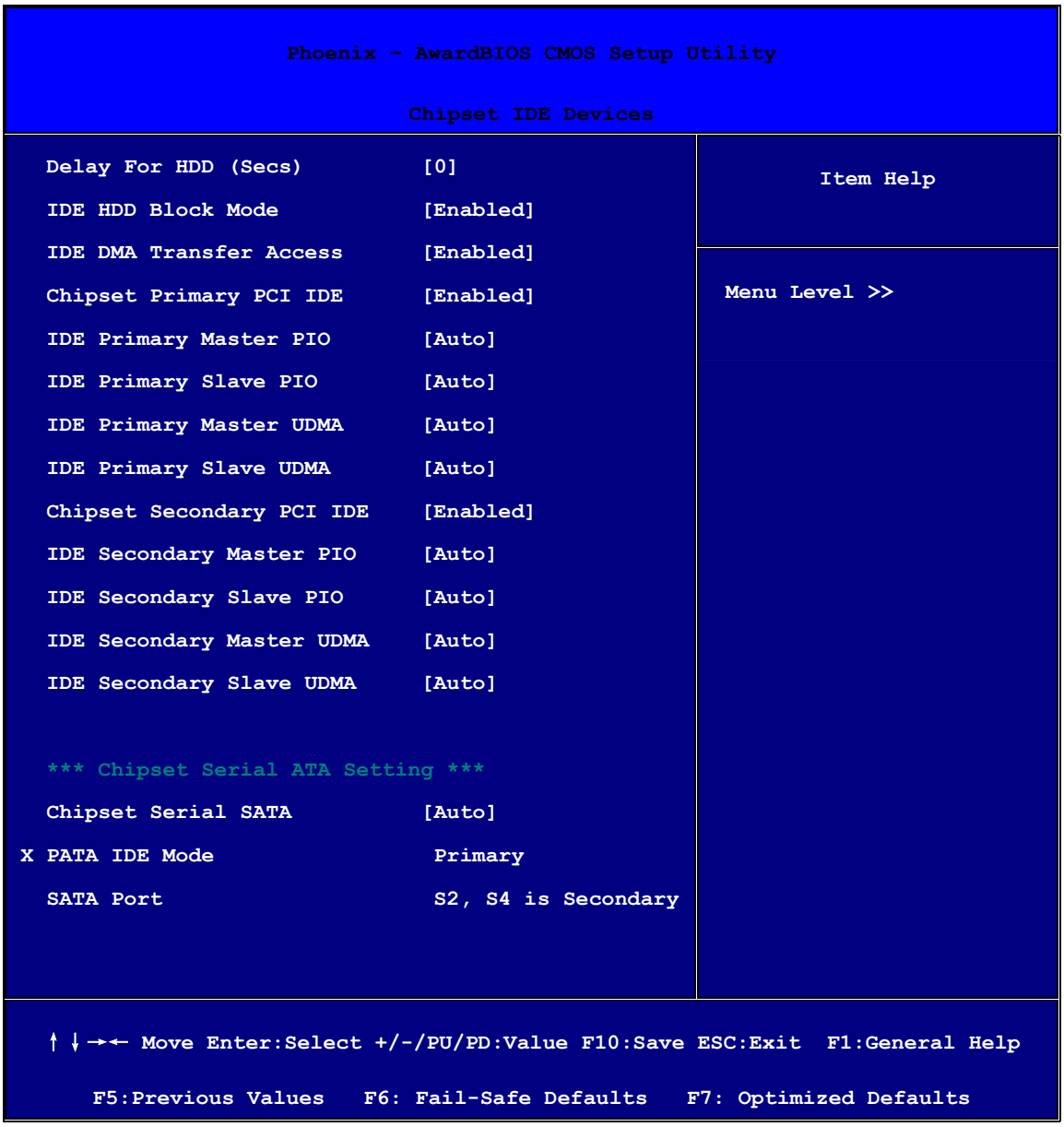
3-7 Integrated Peripherals



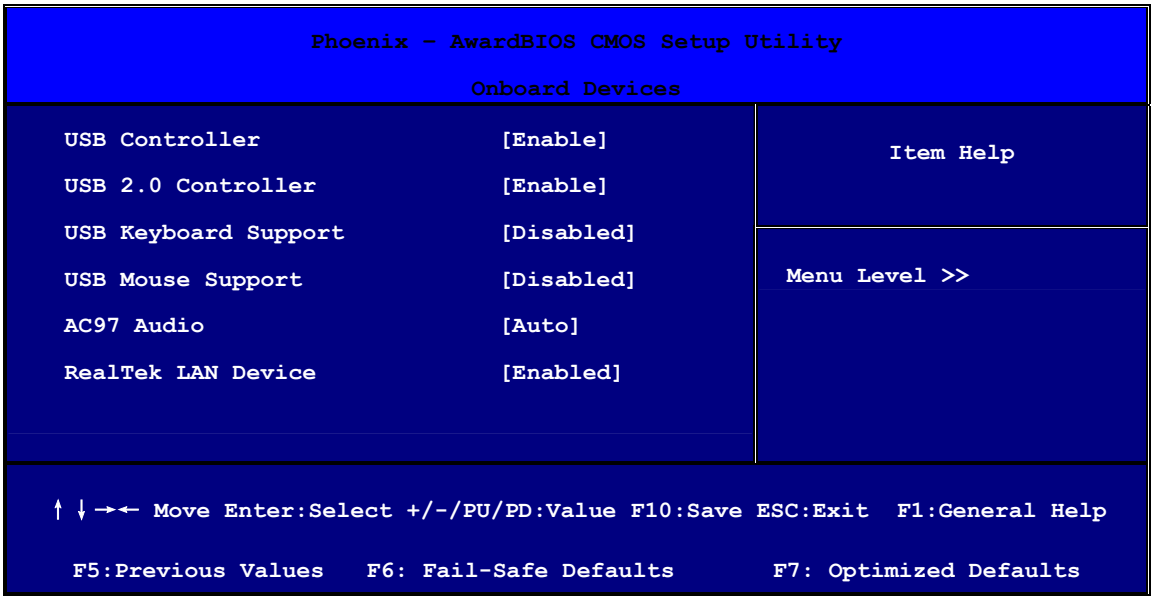
3-7-1 PCI Express Function



3-7-2 Chipset IDE Devices



3-7-3 Legacy Devices



USB Controller :

This Option Allow you to Enabled or Disabled the onboard USB controller.

Available choice: Enabled or Disabled.

USB 2.0 Controller:

This Option Allow you to Enabled or Disabled onboard USB 2.0 or 1.1 only.

Available choice: Enabled or Disabled.

USB Keyboard Support:

This Option Allow you to Enabled or Disabled the USB keyboard legacy supports.

Available choice: Enabled or Disabled.

USB Mouse Support:

This Option Allow you to Enabled or Disabled USB mouse legacy supports.

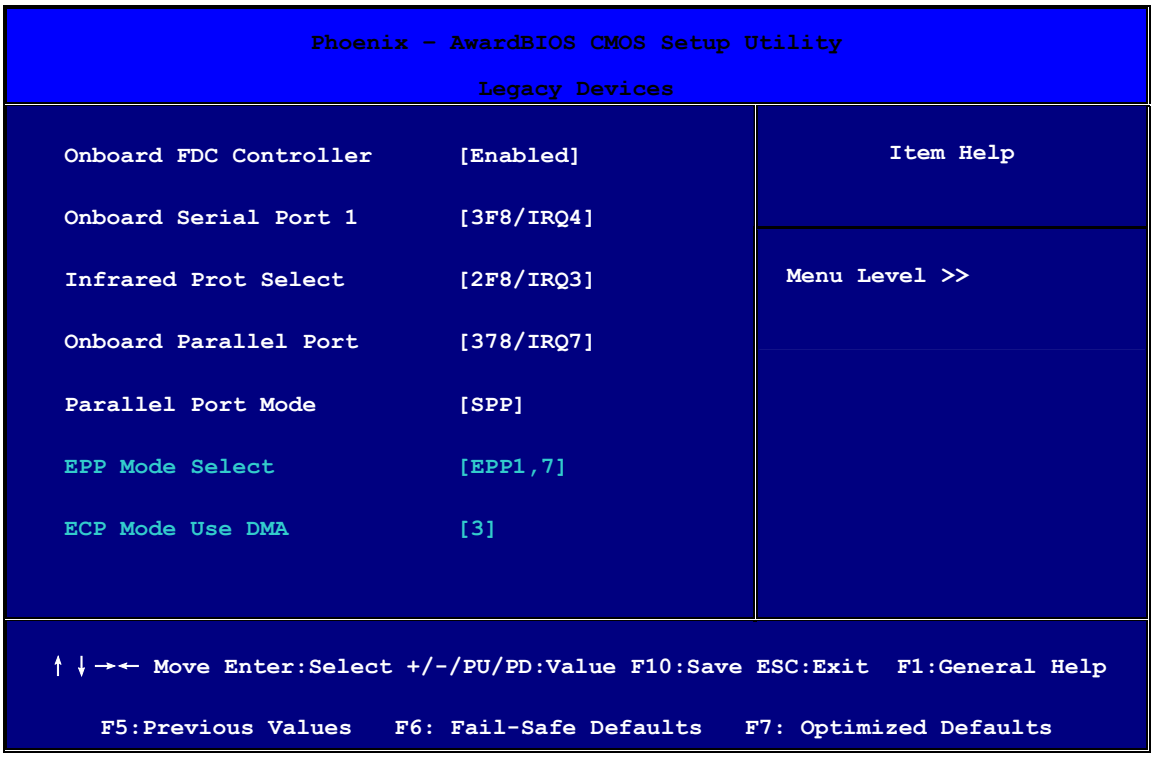
Available choice: Enabled or Disabled.

AC97 Audio:

This Option Allow you to Disable the onboard AC97 Audio.

Available choice: Auto or Disabled.

3-7-4 Legacy Devices



Onboard FDD Controller:

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port /Infrared Port:

Select an address and corresponding interrupt for the first and the second serial ports.

Available settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

Infrared Port :

This item allows you to select InfraRed(IR) port I/O address and IRQ uses.

Available settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

Onboard Parallel Port:

There is a built-in parallel port on the on-board Super I/O chipset that Provides Standard, ECP, and EPP features. It has the following option:

Disabled

(3BCH/IRQ7)/ Line Printer port 0

(278H/IRQ5)/ Line Printer port 2

(378H/IRQ7) Line Printer port 1

Parallel Port Mode

SPP : Standard Parallel Port

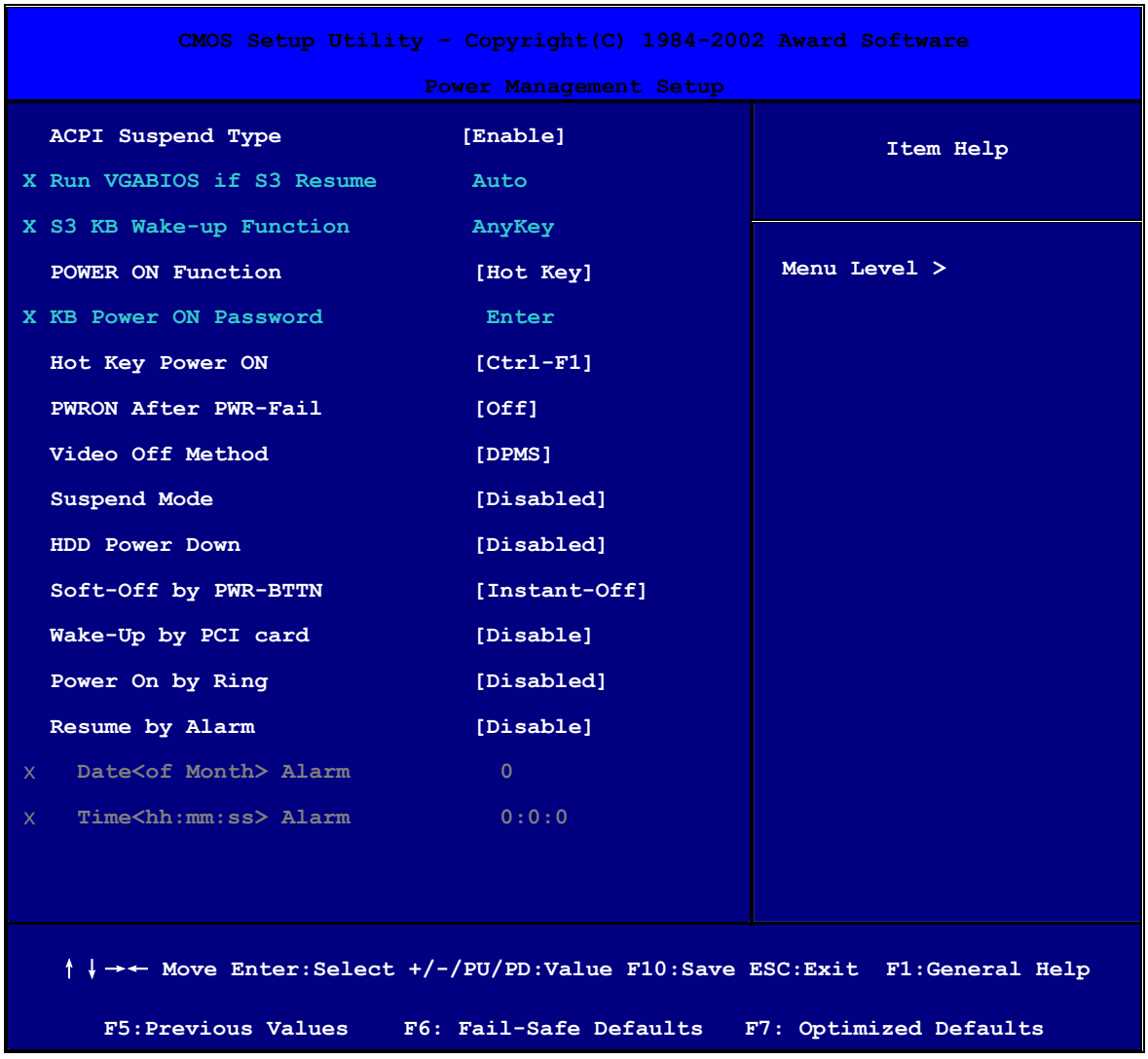
EPP : Enhanced Parallel Port

ECP : Extended Capability Port

SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP+EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: "ECP Mode Use DMA" at this time, the user can choose between DMA channels 3 to 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

3-8 Power Management Setup



ACPI Suspend Type:

This option allows you to select ACPI suspend mode.

Available choice: S1, S3 or S1 & S3.

POWER ON Function:

This items allows you to select how to power on the system.

Available choice: Password, Hot Key, Mouse Left, Mouse Right, Any Key, Button Only, Keyboard 98.

PWRON After PWR-Fail:

This item allows you to select system power status after power lost.

Available choice: Off, On, Former Sts.

Wake-Up by PCI card

When Disabled is selected, the system will ignore any incoming call from the PCI card/modem. When Enabled is selected, the system will boot up if there's an incoming call from the PCI card /modem.

Resume by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

You can choose which month the system will boot up. Set to 0, to boot every day.

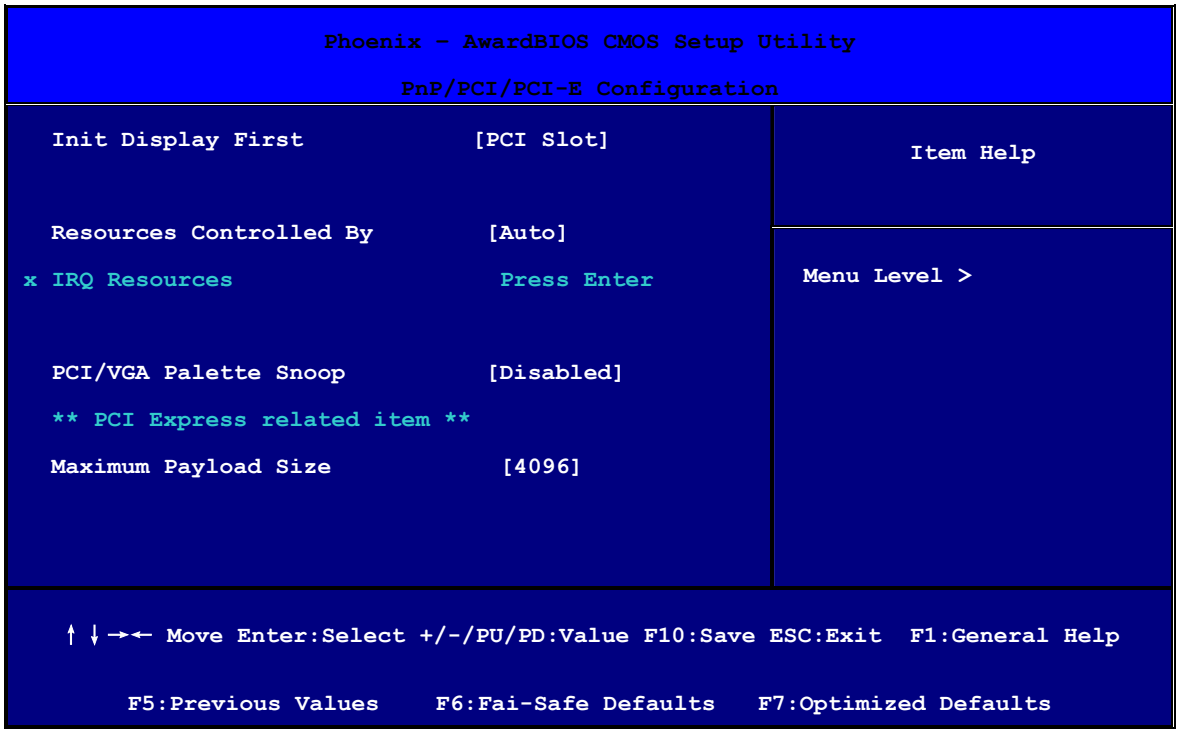
Time(hh:mm:ss) Alarm

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

PM Timer Reload Events

3-9 PnP/PCI/PCI-E Configuration



Init Display First:

This item allows you to select which display will be initialize first, if you would like to use a PCI display card as primary display, you will have to select PCI slot, but if the primary display is onboard graphics controller then select onboard

Available choice: PCI Slot, Onboard or PCIEx.

Resource Controlled By:
The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”).

The settings are: Auto(ESCD), Manual.

IRQ Resources:
When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Please refer to section 3-9-1

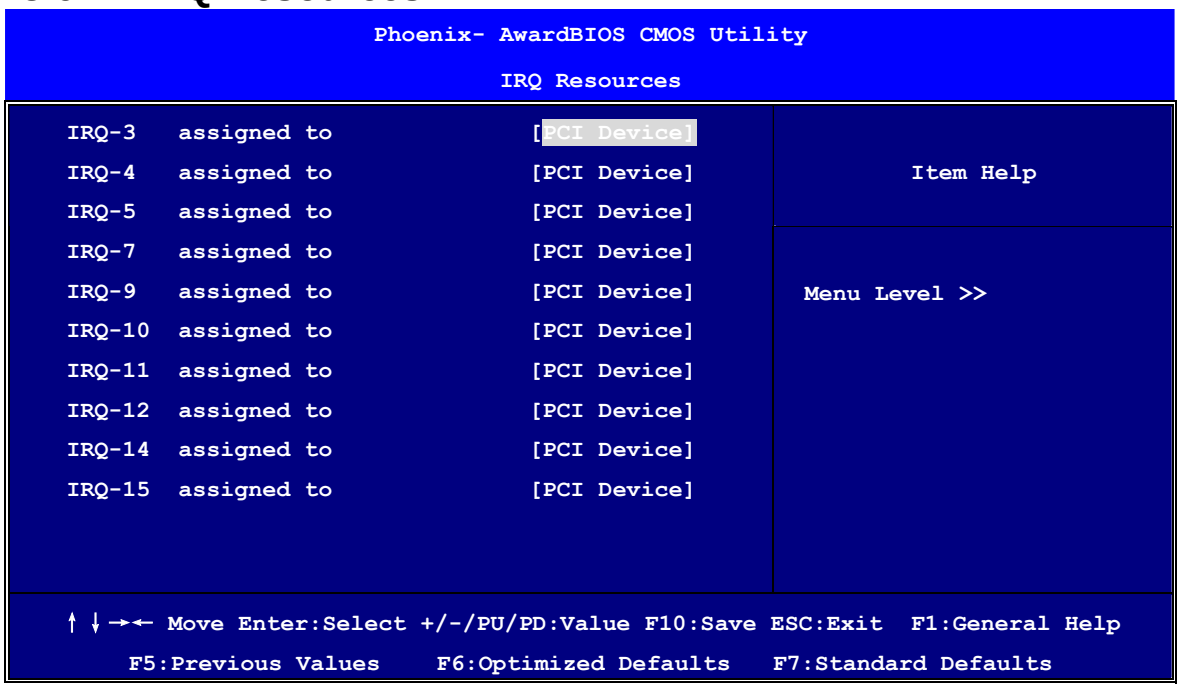
PCI/VGA Palette Snoop:

Leave this field at *Disabled*. The settings are Enabled, Disabled.

Maximum Payload Size:

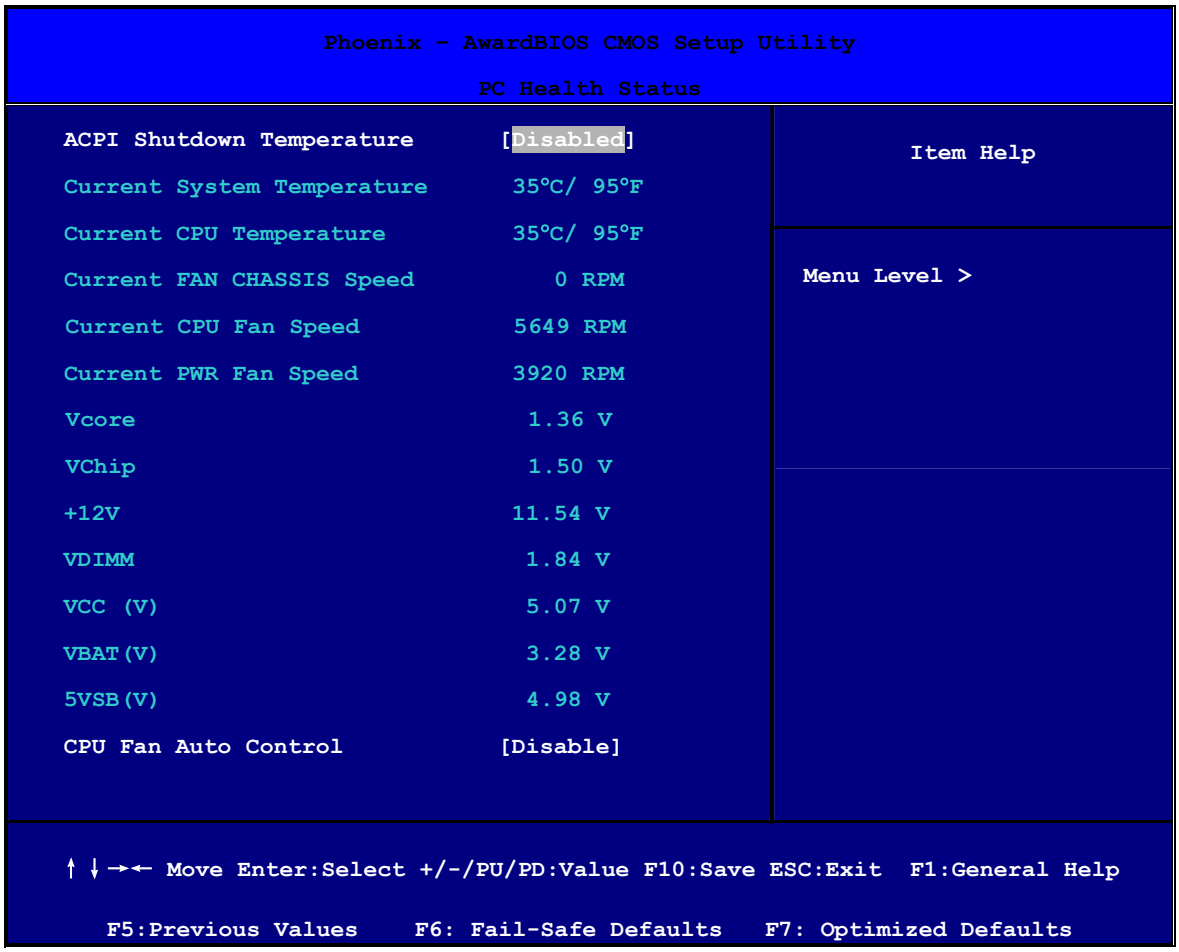
This item allows you to select the PCIE data packet payload size.
Available choice: 128, 256, 512, 1024, 2048 or 4096.

3-9-1 IRQ Resources



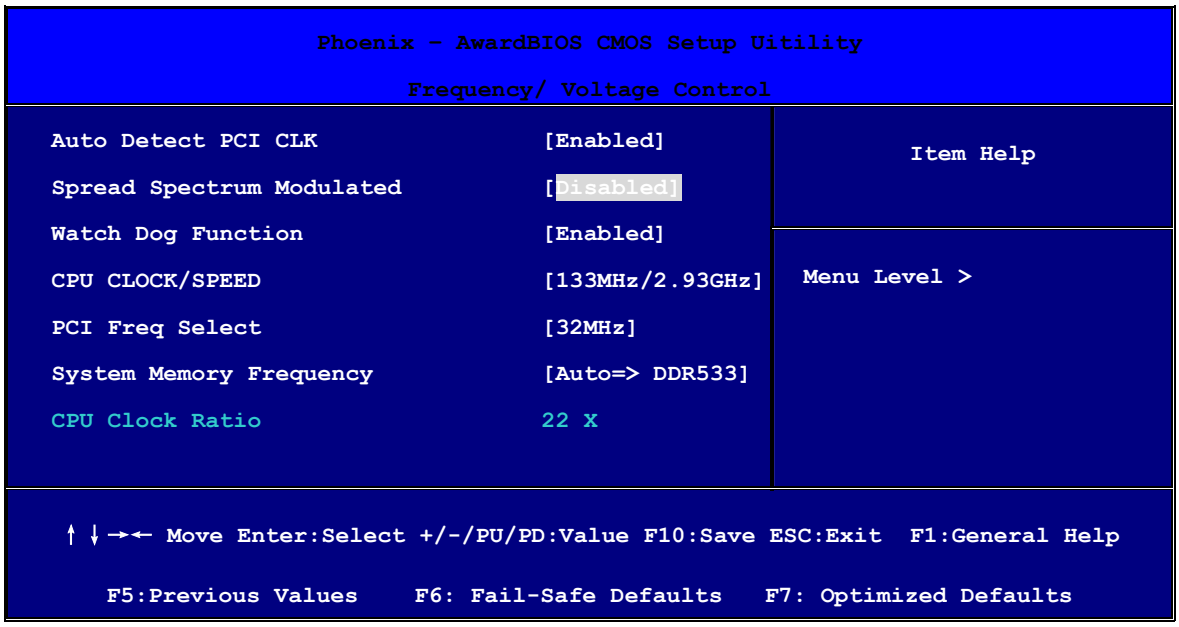
3-10 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.



3-11 POWER BIOS Features

This section is for setting CPU Frequency/Voltage Control.



3-12 Load Manufacture Settings

Load Fail-Safe Defaults:

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Restore Fail-Safe Settings (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

Load Optimized Defaults:

When you press <Enter> on this item, you get confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

3-13 Set Supervisor/ User Password

You can set either supervisor or user password, or both of them. The differences are:

User password: Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

3-14 Exit

Leave Setup program, System will restart after saving setting to CMOS when “Save Change and Exit” is selected. If “Discard change and Exit” is selected, system will restart without saving any changes.

Mechanical Draw